

Sub C¹ WHAT IS CLAIMED IS:

1. A thin film semiconductor device comprising:
an insulating substrate; and
5 a thin film transistor formed on said insulating substrate, wherein
said thin film transistor is formed in a bottom gate structure
having gate electrode, a gate insulating film, and a semiconductor thin
film stacked in the order from below upward, and
said gate electrode is made of metallic material having a
10 thickness of less than 100nm.

2. The thin film semiconductor device according to Claim 1,
wherein
said gate insulating film has a thickness thicker than the
15 thickness of said gate electrode.

3. The thin film semiconductor device according to Claim 1,
wherein
said semiconductor thin film comprises polycrystalline silicon
20 crystallized by an irradiation of a laser beam.

4. The thin film semiconductor device according to Claim 1,
wherein
said gate electrode has a multi-layered structure stacked with an
25 upper layer having comparatively low heat conductivity and high electric
resistance, and a lower layer having comparatively high heat
conductivity and low electric resistance.

5. A display device comprising:
30 an insulating substrate;
pixels arranged in a matrix form; and

thin film transistors for driving said respective pixels, wherein
said pixels and said thin film transistors are formed as integrated
circuits on said insulating substrate,

each of said thin film transistors has a bottom gate structure
5 having a gate electrode, a gate insulating film and a semiconductor thin
film stacked in the order from below upward, and

said gate electrode is made of metallic material having a
thickness of less than 100nm.

10 6. The display device according to Claim 5, wherein
said gate insulating film has a film thickness thicker than the
thickness of the gate electrode.

15 7. The display device according to Claim 5, wherein
said semiconductor thin film comprises polycrystalline silicon
crystallized by an irradiation of a laser beam.

20 8. The display device according to Claim 5, wherein
said gate electrodes have a multi-layer structure stacked with an
upper layer having comparatively low heat conductivity and high electric
resistance, and a lower layer having comparatively high heat
conductivity and low electric resistance.

25 9. The method of manufacturing a display device having pixels
arranged in a matrix form and thin film transistors for driving said
respective pixels formed as integrated circuits on an insulating substrate,
said method comprising the step of:

stacking a gate electrode, a gate insulating film and a
semiconductor thin film in the order from below upward on an insulating
30 substrate to form a thin film transistor in bottom gate structure, wherein
said gate electrode formed of metallic material has a thickness of

less than 100nm.

10. The method according to Claim 9, wherein
said gate insulating film is formed with a thickness thicker than
5 the thickness of the gate electrode.

11. The method according to Claim 9 wherein
said semiconductor thin film uses polycrystalline silicon
crystallized by an irradiation of a laser beam.
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12. The method according to Claim 9, wherein
said gate electrode is formed by stacking an upper layer having
comparatively low heat conductivity and high electric resistance and a
lower layer having comparatively high heat conductivity and low electric
15 resistance.

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